

Facsimile Cover Letter

America Online
8619 Westwood Center Drive
Vienna, Virginia 22182-2285
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FAX NUMBER 703/917-1802

TO: BREWSTER DATE:

SUBJECT: TIME:

COMPANY NAME: FROM:

FAX NUMBER: 415-327-6513 SENT BY:

CC:

TOTAL NUMBER OF PAGES INCLUDING COVER PAGE:

MESSAGE:

Signed agreement
12/21/94

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CONFIDENTIAL

SOFTWARE DEVELOPMENT AND LICENSE AGREEMENT

19th THIS SOFTWARE DEVELOPMENT AND LICENSE AGREEMENT ("Agreement") is made as of the 12 day of Dec., 1994 (the "Effective Date"), between America Online, Inc., a Delaware corporation, with offices located at 8619 Westwood Center Drive, Vienna, Virginia 22182 (hereinafter referred to as "AOL"), and WAIS, Inc., a California corporation, with offices located at 1040 Noel Drive, Menlo Park, California 94025 (hereinafter referred to as "WAIS").

WHEREAS, WAIS is engaged in the development, marketing, licensing and support of certain custom and standard computer software products;

WHEREAS, AOL is engaged in the business of providing an interactive online information service ("America Online Service") and works with numerous Information Providers (as defined herein) to publish content for such services;

WHEREAS, AOL provides to such Information Providers certain software publishing tools and services for the creation and publication of content for the America Online Service and desires to have the software publishing tools to provide Information Providers with the ability to create and publish content for a computer network known as the "Internet";

WHEREAS, WAIS has agreed to develop a modified version of its product known as the WAIS Server for UNIX and a customized interface between such modified version and AOL's software tools program known as Rainman Plus, which together will have such capability and which will be known as the Lightning System;

WHEREAS, WAIS desires to grant to AOL a nonexclusive right with regard to such modified version of the WAIS Server, and joint ownership rights with regard to such custom interface, all in accordance with the terms and conditions set forth in this Agreement; and

WHEREAS, the parties hereto desire to set forth herein the terms and provisions of their agreements and understandings.

NOW, THEREFORE, in consideration of the foregoing, of the mutual promises hereinafter set forth and of other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties hereto, intending to be legally bound, hereby agree as follows:

1. DEFINITIONS.

1.1 Acceptance. The term "Acceptance" shall mean the written evaluation by AOL that a Deliverable meets the specifications of the Project in Exhibit A and is acceptable to AOL.

1.2 Custom Product. The term "Custom Product" shall mean an interface between the Modified Standard Product and Rainman Plus, as more fully described in Exhibit A under the heading "Rainman Feed Handler."

1.3 Deliverables. The term "Deliverables" means all items specified in Exhibit A which are to be produced and provided to AOL by WAIS in connection with the Project.

1.4 **Documentation.** The term "Documentation" shall mean documentation describing in reasonable detail the installation, operation and use of the Modified Standard Product and Custom Product, as applicable.

1.5 **Enhancements.** The term "Enhancements" shall mean updates, upgrades, enhancements, new releases and new versions of the Modified Standard Product other than Updates. Any Enhancements delivered by WAIS hereunder will be considered to be the "Modified Standard Product" under this Agreement after their delivery.

1.6 **Information Providers.** The term "Information Providers" shall mean entities (including persons) that have contracted with AOL to provide information or materials for use on the America Online Service. Members to the America Online Service shall not be considered Information Providers for the purposes of this Agreement.

1.7 **Lightning System.** The term "Lightning System" shall mean a computer software system composed of the Modified Standard Product and the Custom Product.

1.8 **Modified Standard Product.** The term "Modified Standard Product" shall mean a version of the Standard Product that has been modified to allow the user of the Standard Product to transfer Hyper Text Makeup Language (HTML), as more fully described in Exhibit A under the headings "WAIS DBMS," "WAIS Filer Library," WAIS Search Library" and "HTML Generator."

1.9 **Object Code.** The term "Object Code" shall mean computer programs assembled or compiled in magnetic or electronic binary form on software media, which are readable and usable by machines, but not generally readable by humans without reverse assembly, reverse compiling, or reverse engineering.

1.10 **Project.** The term "Project" shall mean the software development project described in Exhibit A hereto.

1.11 **Rainman Plus.** The term "Rainman Plus" shall mean the software tools program developed exclusively by AOL for use by AOL's Information Providers to publish content for distribution over the America Online Service.

1.12 **Source Code.** The term "Source Code" shall mean computer programs written in higher-level programming languages accompanied by reasonably sufficient English-language comments to ensure that it is intelligible to trained programmers which may be translated into Object Code for operation on computer equipment through the process of compiling.

1.13 **Standard Product.** The term "Standard Product" shall mean the WAIS Server for UNIX version 2.0.

1.14 **Updates.** The term "Updates" shall mean new releases of the Modified Standard Product that include changes to the Modified Standard Product that have been made by WAIS to correct known defects or to maintain the operational quality of the Modified Standard Product. Any Updates delivered by WAIS hereunder will be considered to be the "Modified Standard Product" under this Agreement after their delivery.

2. DEVELOPMENT OF CUSTOM PRODUCT AND MODIFIED STANDARD PRODUCT.

2.1 Project. The objective of the Project is the development and delivery to AOL of the Modified Standard Product and the Custom Product by WAIS in accordance with the schedule set forth in Exhibit B. In the event that WAIS fails to deliver the Custom Product, Modified Standard Product and Documentation in accordance with the schedule set forth in Exhibit B, then for each day past such date, One Thousand Dollars (\$1,000.00) shall be deducted from the total payments due to WAIS as provided in Section 2.6 below; provided, however, that the dates set forth in Exhibit B shall be extended as a result of and in proportion to any delay in AOL's performance of its obligations; and provided, further, that the dates set forth in Exhibit B shall be extended if AOL's testing period after any delivery extends beyond five (5) days. In no event shall the amount of late payments under this Section 2.1 exceed the amount of Twenty-Five Thousand Dollars (\$25,000.00). Exhibit A attached hereto sets forth specific development objectives for the Project and the Deliverables for the Project, as well as the engineering plan and design pursuant to which the Project is to be completed. WAIS will implement the Project and has responsibility for the Project, including, without limitation, the design, coding, documentation, quality assurance and testing of the Custom Product and Modified Standard Product.

2.2 Creation and Delivery of the Custom Product, Modified Standard Product and Documentation. In connection with its implementation of the Project pursuant to this Article 2, WAIS agrees to:

- (a) Consult with AOL, as necessary for the implementation of the Project, and provide AOL with progress reports;
- (b) Commit and utilize sufficient resources and qualified personnel to implement the Project on a timely basis;
- (c) Notify AOL of any factor, occurrence or event which is reasonably anticipated by WAIS to affect its ability to meet any of its material obligations;
- (d) Deliver the Deliverables consistent with the Project and its deadlines;
- (e) Maintain appropriate records and backup materials throughout the term of the Project; and
- (f) Following Acceptance by AOL, provide AOL with a complete copy of Source Code and Object Code versions of the Custom Product and a complete copy of the Object Code version of the Modified Standard Product, as well as a copy of the Documentation.

2.3 Acceptance Testing. Upon completion by WAIS of any Deliverable in accordance with the Project, WAIS shall deliver the Deliverable to AOL. Following its receipt of such Deliverable, AOL shall perform and conduct tests to determine that the Custom Product and Modified Standard Product perform to specifications set forth in Exhibit A. AOL may reject the Deliverable only if the Deliverable does not comply with the specifications set forth in Exhibit A and only by giving WAIS written notice of such noncompliance (including, but not limited to, specification and documentation of the noncompliance upon which the rejection is based) within five (5) days from the receipt of the Deliverable. If notice of noncompliance is not given within such time period, the Deliverable shall be deemed Accepted. If the Deliverable being tested does not

successfully meet the acceptance test, WAIS will use best efforts to effect appropriate corrections and shall resubmit the Deliverable for testing within ten (10) days of receipt of the notice of rejection, at which time AOL shall reperform acceptance testing to determine whether the Custom Product or Modified Standard Product, as applicable, performs to specifications set forth in Exhibit A. If there is continued substantial noncompliance, AOL shall provide WAIS with written notice of such rejection no later than five (5) days after performance of such tests, as AOL's sole remedy for such noncompliance and AOL shall be entitled to terminate this Agreement and receive prompt refund of all payments made to WAIS hereunder, except for AOL's initial payment to WAIS of Twenty-Five Thousand Dollars (\$25,000.00).

2.4 AOL Assistance. In order to enable WAIS to perform its duties pursuant to the Project and under this Agreement, AOL shall provide the following to WAIS at no cost to WAIS during the implementation of the Project by WAIS:

(a) A sufficient number of complete, current copies of the appropriate and available documentation and related materials for the Rainman Plus in print and machine-readable format and certain examples of AOL's Source Code format; and

(b) Access to AOL employees who are well-qualified experts on Rainman Plus. These AOL-employed experts shall provide prompt assistance to WAIS upon request by WAIS in all aspects of the implementation of the Project, including, without limitation, providing WAIS with information, advice, counseling, education and solutions to problems encountered by WAIS. Unless WAIS indicates that the urgency of a particular situation requires faster communication, the mode of communication between WAIS and AOL pursuant to which AOL shall fulfill its obligations under this Section 2.4(b) shall be facsimile.

2.5 Project Management.

2.5.1 WAIS Project Manager. The WAIS project manager shall be WAIS's representative and point of contact for the resolution of problems related to managing the Project, and shall participate and cooperate in the coordination of activities between WAIS and AOL. The WAIS project manager shall also have primary responsibility for, and control over, the development of the Custom Product and the Modified Standard Product and management of the Project, subject to appropriate WAIS internal procedures and controls. The WAIS project manager shall plan, staff, implement and manage the Project. Upon reasonable prior request of the AOL project manager, the WAIS project manager shall allow the AOL project manager during reasonable business hours reasonable consultation with the relevant WAIS personnel (as reasonably designated by the WAIS project manager) and to have reasonable access to the Custom Product Deliverables for the purpose of reviewing the progress of the Project.

2.5.2 AOL Project Manager. The AOL Project Manager shall be AOL's representative and the AOL point of contact for the resolution of problems related to managing the Project, and shall participate and cooperate in the coordination of activities between AOL and WAIS. The AOL project manager shall also have primary responsibility for and control over the management of AOL's contribution to the development of the Custom Product and Modified Standard Product as set forth in this Agreement, subject to appropriate AOL internal procedures and controls. Upon reasonable prior request of the WAIS project manager, the AOL project manager shall allow the WAIS project manager during reasonable business hours to consult with the relevant AOL personnel.

2.5.3 Notice. Within seven (7) days of the Effective Date of this Agreement, each party shall provide the other party with written notice of the identity of its project manager. During the Project, seven (7) days' prior written notice shall be given in the event either party elects to change its project manager.

2.5.4 Authority. Each party shall vest its project manager with the authority necessary to carry out his or her obligations and responsibilities hereunder. Each party may assume the other party's project manager is acting within the scope of his or her authority.

2.6 Payments. The parties acknowledge that AOL has already paid WAIS Twenty-Five Thousand Dollars (\$25,000.00) in connection with background work relating to Project. Within fifteen (15) days after WAIS's delivery of the initial version of the Custom Product and Modified Standard Product, which shall be delivered in accordance with the schedules set forth herein, AOL shall pay WAIS Fifty Thousand Dollars (\$50,000.00). Upon AOL's acceptance of the final version of the Custom Product and Modified Standard Product and all Deliverables associated therewith, which shall be delivered in accordance with the schedules set forth herein, AOL shall pay WAIS Twenty-Five Thousand Dollars (\$25,000.00).

2.7 Tax Withholding. In the event that applicable tax law requires AOL to withhold any tax from any payments due to WAIS, AOL shall provide WAIS with appropriate available information, receipts and copies of forms or information relating to such withholdings. Each party shall pay all duties and taxes, however designated, imposed as a result of the existence or operation of this Agreement upon it, including, but not limited to, sales tax.

2.8 Ownership.

2.8.1 Modified Standard Product. WAIS hereby retains all right, title and interest in and to the Modified Standard Product and related Documentation and all components thereof, including all copyrights, trade secrets, patentable materials, patents and other intellectual property rights therein and thereto. AOL's rights to the Modified Standard Product are as set forth in Section 3 below.

2.8.2 Custom Product. Upon AOL's Acceptance of the Custom Product, WAIS shall be deemed to assign irrevocably to AOL joint right, title and interest, throughout the world and without restriction, in and to the Custom Product and related Documentation and all components thereof, including all copyrights, trade secrets, patentable materials and other intellectual property rights therein and thereto. AOL shall have the right to use, disclose and exploit the Custom Product for any purpose without restriction. WAIS shall have the right to use, disclose and exploit the Custom Product for a particular use, disclosure or exploitation thereof upon prior written approval from AOL; provided that such approval shall not be withheld or delayed unless AOL reasonably determines that WAIS proposed use, disclosure or exploitation of the Custom Product would materially diminish AOL's exploitation of its proprietary rights in Rainman Plus.

3. LICENSING OF MODIFIED STANDARD PRODUCT.

3.1 Licenses Granted by WAIS.

3.1.1 License. WAIS hereby grants to AOL a nonexclusive, nontransferable license, without the right to sublicense, to use one (1) copy of the Modified Standard Product and related Documentation solely on one computer containing a single processor ("Server") located at its Vienna, Virginia facility, and solely as part of the Lighting System, and to allow AOL's customers to use the Modified Standard Product as installed on the Server to perform searches. AOL may make one (1) copy of the

Modified Standard Product solely for backup purposes and may use such copy on one backup computer containing a single processor.

3.1.2 Proprietary Rights Notices. AOL agrees to reproduce all copyright and other proprietary rights notices on all copies of the Modified Standard Product and related Documentation made by AOL.

3.1.3 Restrictions. AOL agrees not to (i) use the Modified Standard Product on more than one computer at a time; (ii) use the Modified Standard Product on any computer containing more than one processor, (iii) reverse engineer, decompile, disassemble or otherwise attempt to derive Source Code from the Modified Standard Product, (iv) make the Modified Standard Product or related Documentation available to any third party by sale, lease, rental, sublicense or otherwise, except asset forth above, (v) copy or allow others to copy any portion of the Modified Standard Product or related Documentation; (vi) modify, adapt, translate or create derivative works based on the Modified Standard Product; or (vii) remove any copyright or other proprietary rights notices from the Modified Standard Product or related Documentation.

3.2 Additional Licenses. AOL shall have the right to license from WAIS additional copies of the Modified Standard Product in consideration for the following amounts: Fifteen Thousand Dollars (\$15,000.00) for use on a computer containing a single processor and Fifty Thousand Dollars (\$50,000.00) for use on a computer containing more than one processor. Such licenses shall be effective upon the receipt by WAIS of the applicable consideration. The license terms with respect to such additional copies shall be as set forth in Section 3.1 above; provided, however, that with respect to copies licensed for use on a computer containing more than one processor, the Modified Standard Product may be installed on each such processor. The provisions of Section 2.7 shall apply to any such additional payments.

3.3 Trademarks.

3.3.1 Authorized Use. AOL shall advertise the Modified Standard Product under the trademarks, service marks, and trade names that WAIS may adopt from time to time ("WAIS's Trademarks") for the Standard Product. Nothing herein shall grant to AOL any right, title or interest in WAIS's Trademarks. All uses of WAIS's Trademarks by AOL shall inure to the benefit of WAIS. At no time during the term of this Agreement shall AOL challenge or assist others to challenge WAIS's Trademarks or the registration thereof or attempt to register any trademarks, service marks or trade names confusingly similar to those of WAIS.

3.3.2 Approval of Representations. All representations of WAIS's Trademarks that AOL intends to use shall first be submitted to WAIS for approval (which shall not be unreasonably withheld or delayed) of design, color, and other details or shall be exact copies of those used by WAIS. If any of WAIS's Trademarks are to be used in conjunction with another trademark, then WAIS's Trademark shall be presented equally legibly, equally prominently, and of equal size with the other but nevertheless separated from the other so that each appears to be a mark in its own right, distinct from the other mark.

4. MAINTENANCE AND SUPPORT

4.1 Obligations of WAIS.

4.1.1 Updates. WAIS will deliver Object Code versions of Updates to AOL remotely via electronic distribution or via shipment of media containing Updates.

4.1.2 Technical Support. WAIS will use commercially reasonable efforts to:

(a) provide AOL with a reasonable amount of telephone technical assistance between the hours of 9:00 a.m. and 5:00 p.m. prevailing California time, Monday through Friday, excluding WAIS holidays;

(b) remotely access the Modified Standard Product on the Server to provide technical support; and

(c) perform such actions as WAIS deems appropriate to enable AOL to operate the Modified Standard Product if AOL is completely unable to use the Modified Standard Product.

4.1.3 Training. WAIS shall provide eight (8) hours of training of AOL's technical representatives in the use of the Custom Product and Modified Standard Product.

4.1.4 Installation. WAIS shall provide reasonable amounts of support to AOL in the initial installation of the Custom Product and Modified Standard Product.

4.1.5 Enhancements. WAIS will deliver Object Code versions of Enhancements to AOL remotely via electronic distribution or via shipment of media containing Enhancements.

4.2 Responsibilities of AOL.

4.2.1 Access. AOL will provide WAIS, on an as required basis, with access to and use of all AOL's information and system facilities deemed helpful by WAIS to provide timely support and maintenance pursuant to this Section 4. In addition, AOL will configure the Server in such a manner as to permit WAIS to remotely access and operate the Modified Standard Product.

4.2.2 Technical Support Contact. AOL will notify WAIS in writing of a liaison and alternate, who will act as AOL's liaison for all technical communications with WAIS. All information and materials provided to AOL by WAIS pursuant to this Section 4 will be routed to such liaison.

4.2.3 Notice of Malfunctions. AOL will notify WAIS of any bugs or other problems as soon as reasonably practicable.

4.2.4 AOL Cooperation. AOL will exercise commercially reasonable efforts to cooperate with WAIS in connection with WAIS performance of its duties hereunder. AOL will, to the best of its abilities, read, comprehend and follow operating instructions, procedures, and other instructions specified in the Custom Product and Modified Standard Product, other manuals and related documentation and

correspondence, and oral instructions related to the Custom Product and the performance by WAIS of its obligations hereunder.

4.3 Limitations of Support. Support will not be provided to AOL for copies of the Modified Standard Product for which WAIS has not received payment, or during any period that AOL is in breach of any material obligations of this Agreement if such non-payment or breach has not been cured within thirty (30) days of receipt of notice or significant efforts have not been made to remedy such default.

4.4 WAIS Not Responsible.

4.4.1 Damage to Property. In connection with the support to be performed hereunder, WAIS will not be responsible directly or indirectly for any damage to any apparatus or property of AOL, or for any injuries to persons, unless such damage or injury is directly attributable to the negligence or misconduct of WAIS.

4.4.2 AOL's Actions. WAIS will not be liable for the acts and workmanship of AOL, the failure to observe WAIS's reasonable instructions, or the failure or malfunctioning of any tools, equipment, facilities, or devices not furnished or approved by WAIS.

4.5 Performance. WAIS will perform all services under this Section 4 at or from its offices. WAIS shall not be required to assign more than one person to the performance of services under this Section 4.

4.6 Consideration. The support and maintenance services set forth in Sections 4.1.1 - 4.1.4 shall be provided at no additional charge. In consideration for the Enhancements under Section 4.1.5, AOL agrees to pay WAIS the amount of Eleven Thousand Dollars (\$11,000.00) per month. Such fee shall be due and payable with respect to each calendar month prior to the start thereof.

4.7 Termination of Enhancements. AOL shall have the right to terminate Enhancements under Section 4.1.5 for any reason or for no reason by giving notice to WAIS ten (10) days prior to the beginning of any calendar month. The foregoing shall be the sole and exclusive remedy of AOL for any breach by WAIS of the terms of Section 4.1.5.

5. TERM AND TERMINATION.

5.1 Term of Agreement. This Agreement shall commence on the Effective Date and shall continue in full force and effect unless and until terminated as provided below or in Section 2.3.

5.2 Termination. Either party shall have the right to terminate this Agreement on sixty (60) days' prior written notice to the other party in the event of a material breach by the other party of its material obligations as specified in this Agreement. Either party shall have the right to terminate this Agreement in its entirety immediately upon written notice in the event (i) that the other party shall become insolvent or otherwise unable to pay its debts as they become due, or upon the filing of any bankruptcy or insolvency proceeding by the other party or upon the filing of any bankruptcy or insolvency proceeding against the other party which proceeding is not dismissed within sixty (60) days of filing; (ii) any "change of control" of the other party, which, for purposes hereof, shall mean any transfer or series of transfers resulting in the beneficial ownership of fifty percent (50%) or more of the equity interest or voting control of a party.

5.3 **Right to Cure.** Notwithstanding the foregoing provisions of this Section 5, each party shall have the right to cure any breach upon which the other party proposes to terminate this Agreement pursuant to this Section 5; provided, however, that such breach shall be cured to the satisfaction of such party which proposes to terminate on or prior to the date upon which such termination shall otherwise be deemed effective hereunder. Notwithstanding the foregoing, this Agreement (or any part thereof) shall not be deemed terminated for as long as the party which is alleged to have breached this Agreement shall have been exercising its best efforts to cure such breach.

5.4 **Effect of Termination.** Upon termination, all rights of AOL to the Modified Standard Product shall terminate. The provisions of Sections 2.9, 8, 10 and 11 shall survive.

6. REPRESENTATIONS, WARRANTIES AND COVENANTS BY WAIS.

As a material inducement to AOL to enter into this Agreement, WAIS makes the following representations, warranties and covenants to AOL, each of which shall be true and correct as of the date hereof and during the period while this Agreement is in effect, including any period subsequent to termination during which certain provisions survive:

6.1 **Due Organization; Good Standing.** WAIS is a corporation duly organized, validly existing and in good standing under the laws of the State of California, and has full corporate power and legal right to execute, deliver and perform this Agreement, and all action necessary for the valid execution of this Agreement has been duly taken by WAIS.

6.2 **Title.** WAIS has full and exclusive right, title and ownership in the Modified Standard Product and Custom Product and Documentation and any related patents, copyrights, trademarks, service marks, trade names and trade secrets licensed to AOL hereunder, free and clear of all liabilities (contingent or otherwise), charges, obligations, security interests, restrictions, and other encumbrances.

6.3 **No Conflicts.** This is no commitment, understanding, option, or agreement whatsoever, written or oral, pursuant to which any individual or entity other than WAIS has any claim, right, title to or interest in any or all of the Modified Standard Product or Custom Product or parts thereof which conflicts with the terms and conditions of this Agreement and AOL's rights pursuant hereto.

6.4 **No Default.** The execution and delivery of this Agreement and the consummation of the transactions contemplated hereby do not conflict with, violate or constitute a default under any constituent or governing instrument of WAIS, any statute, rule, order or regulation or any other contract or other instrument to which WAIS is a party or by which it is bound.

6.5 **No Litigation.** There is no litigation, claim, proceeding, or investigation pending or threatened with respect to any aspect of the Modified Standard Product or Custom Product or the transactions contemplated by this Agreement.

6.6 **No Infringement.** There are no claims, nor facts known to WAIS which might lead to any claim, by third parties of infringement of any rights relating to the Modified Standard Product and Custom Product or arising as a result of this agreement or any acts contemplated by, or taken in furtherance of, this Agreement.

6.7 **Sufficient Resources.** WAIS warrants that it has sufficient facilities, resources, and personnel to adequately develop, maintain and enhance the Modified Standard Product and Custom Product and perform its duties hereunder in a commercially reasonable manner and it agrees to commit such resources to such purposes.

THE PROVISIONS OF THIS SECTION HEREOF ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE MODIFIED STANDARD PRODUCT, CUSTOM PRODUCT AND DOCUMENTATION, WHETHER IMPOSED BY CONTRACT, STATUTE, COURSE OF DEALING, CUSTOM OR USAGE OR OTHERWISE.

7. REPRESENTATIONS, WARRANTIES AND COVENANTS BY AOL.

As a material inducement to WAIS to enter into this Agreement, AOL makes the following representations and warranties to WAIS, each of which shall be true and correct as of the date hereof and during the period this Agreement is in effect including any period subsequent to termination during which certain provisions survive:

7.1 **Due Organization; Good Standing.** AOL is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware.

7.2 **Right and Authority.** AOL has full corporate power and legal right to execute, deliver and perform this Agreement. All corporate action of AOL necessary for the execution, delivery and performance of this Agreement has been duly taken.

7.3 **No Default.** The execution and delivery of this Agreement and the consummation of the transactions contemplated herein do not conflict with, violate, or constitute a default under, AOL's Certificate of Incorporation or Bylaws, any U.S. statute, rule, order or regulation or any contract or commitment to which AOL is a party or by which it is bound.

7.4 **Sufficient Resources.** AOL warrants that it has sufficient facilities, resources and personnel to adequately the Modified Standard Product and Custom Product to perform its obligations hereunder and it agrees to commit such resources to such purposes.

8. LIMITATION OF LIABILITY.

Notwithstanding any other provision of this Agreement, and except for either party's obligations under Section 9 below, neither party shall be liable for loss of profit, goodwill or other special, incidental, indirect or consequential damages suffered by the other party, whether or not the possibility of such damage was disclosed to or could have been reasonably foreseen by such party. Each party's liability for any claim for damages for breach of this Agreement, except for such party's obligations under Section 9 below, shall be limited to direct damages. Except for WAIS's obligation under Section 9, WAIS's liability under or arising out of this Agreement shall not exceed the fees which have been paid by AOL for the Modified Standard Product and Custom Product which are the subject of the alleged breach.

9. INDEMNIFICATION.

9.1 By WAIS. WAIS will defend, at its expense, any action brought against AOL by any third party to the extent that such action is based on a claim that the Modified Standard Product or Custom Product when used in accordance with this Agreement, infringes a United States copyright, patent, trade secret, trademark or other intellectual property right, and WAIS will pay any costs, settlements, and damages finally awarded; provided that AOL promptly notified WAIS in writing of any claim, gives WAIS sole control of the defense and settlement and provides all reasonable assistance in connection therewith. If the Modified Standard Product or Custom Product is finally adjudged to so infringe, or, in WAIS' reasonable opinion, will be adjudged to so infringe, WAIS will, at its option: (i) procure for AOL the right to continue using the software, (ii) modify or replace the software to make it non-infringing, or (iii) refund the fee paid upon return of the software. The foregoing indemnification obligations will not extend to any claim arising out of: (x) use of other than the then current, unaltered release of the Modified Standard Product or Custom Product or any Update, unless the infringing portion is also in the then current, unaltered release, (y) use of any software on other than the specified platform, or in combination with any software which is not part of the Modified Standard Product or Custom Product, if the infringement was caused by such use or combination, or (z) any modification or marking of any software other than by WAIS. THE FOREGOING STATES THE ENTIRE LIABILITY OF WAIS AND THE EXCLUSIVE REMEDY OF AOL RELATING TO INFRINGEMENT OR CLAIMS OF INFRINGEMENT OF ANY PATENT, TRADEMARK, COPYRIGHT, MASK WORK RIGHT, TRADE SECRET OR OTHER PROPRIETARY RIGHT BY THE MODIFIED STANDARD PRODUCT. LICENSOR WILL NOT PROVIDE ANY INDEMNITY WHATSOEVER FOR ANY ACTUAL OR ALLEGED INFRINGEMENT OF ANY FOREIGN PATENT, TRADEMARK, COPYRIGHT, TRADE SECRET OR OTHER PROPRIETARY RIGHTS BY THE MODIFIED STANDARD PRODUCT.

9.2 By AOL. Except as provided in Section 9.1, AOL will defend, indemnify, and hold harmless WAIS against all expenses and damages arising out of any claims against WAIS as a result of any use by AOL of the Modified Standard Product or Custom Product.

10. NONDISCLOSURE OF PROPRIETARY INFORMATION.

10.1 Title in WAIS. AOL acknowledges and agrees that the Modified Standard Product constitutes valuable property of WAIS, that all title and ownership rights to the Modified Standard Product shall remain exclusively with WAIS, and that AOL's rights to the Modified Standard Product are limited to those specifically granted in this Agreement. WAIS reserves all rights with respect to the Modified Standard Product under all laws for the protection of proprietary information, including trade secrets, copyrights and patents.

10.2 Nondisclosure by AOL. It may be necessary and desirable for WAIS to disclose to AOL proprietary information relating to WAIS' business activities, the Modified Standard Product, the Standard Product and other of its technical and proprietary information. AOL shall hold all proprietary information in confidence and avoid any use or disclosure other than as permitted by this Agreement or as otherwise authorized by WAIS. WAIS proprietary information shall be safeguarded by AOL in the same manner it safeguards confidential materials or data relating to its own business, but in no event less than reasonable care and which shall include requiring its employees to sign an agreement prohibiting the unauthorized use or disclosure of AOL and certain third party proprietary information.

6.7 **Sufficient Resources.** WAIS warrants that it has sufficient facilities, resources, and personnel to adequately develop, maintain and enhance the Modified Standard Product and Custom Product and perform its duties hereunder in a commercially reasonably manner and it agrees to commit such resources to such purposes.

THE PROVISIONS OF THIS SECTION HEREOF ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE MODIFIED STANDARD PRODUCT, CUSTOM PRODUCT AND DOCUMENTATION, WHETHER IMPOSED BY CONTRACT, STATUTE, COURSE OF DEALING, CUSTOM OR USAGE OR OTHERWISE.

7. REPRESENTATIONS, WARRANTIES AND COVENANTS BY AOL.

As a material inducement to WAIS to enter into this Agreement, AOL makes the following representations and warranties to WAIS, each of which shall be true and correct as of the date hereof and during the period this Agreement is in effect including any period subsequent to termination during which certain provisions survive:

7.1 **Due Organization; Good Standing.** AOL is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware.

7.2 **Right and Authority.** AOL has full corporate power and legal right to execute, deliver and perform this Agreement. All corporate action of AOL necessary for the execution, delivery and performance of this Agreement has been duly taken.

7.3 **No Default.** The execution and delivery of this Agreement and the consummation of the transactions contemplated herein do not conflict with, violate, or constitute a default under, AOL's Certificate of Incorporation or Bylaws, any U.S. statute, rule, order or regulation or any contract or commitment to which AOL is a party or by which it is bound.

7.4 **Sufficient Resources.** AOL warrants that it has sufficient facilities, resources and personnel to adequately the Modified Standard Product and Custom Product to perform its obligations hereunder and it agrees to commit such resources to such purposes.

8. LIMITATION OF LIABILITY.

Notwithstanding any other provision of this Agreement, and except for either party's obligations under Section 9 below, neither party shall be liable for loss of profit, goodwill or other special, incidental, indirect or consequential damages suffered by the other party, whether or not the possibility of such damage was disclosed to or could have been reasonably foreseen by such party. Each party's liability for any claim for damages for breach of this Agreement, except for such party's obligations under Section 9 below, shall be limited to direct damages. Except for WAIS's obligation under Section 9, WAIS's liability under or arising out of this Agreement shall not exceed the fees which have been paid by AOL for the Modified Standard Product and Custom Product which are the subject of the alleged breach.

9. INDEMNIFICATION.

9.1 By WAIS. WAIS will defend, at its expense, any action brought against AOL by any third party to the extent that such action is based on a claim that the Modified Standard Product or Custom Product when used in accordance with this Agreement, infringes a United States copyright, patent, trade secret, trademark or other intellectual property right, and WAIS will pay any costs, settlements, and damages finally awarded; provided that AOL promptly notified WAIS in writing of any claim, gives WAIS sole control of the defense and settlement and provides all reasonable assistance in connection therewith. If the Modified Standard Product or Custom Product is finally adjudged to so infringe, or, in WAIS' reasonable opinion, will be adjudged to so infringe, WAIS will, at its option: (i) procure for AOL the right to continue using the software, (ii) modify or replace the software to make it non-infringing, or (iii) refund the fee paid upon return of the software. The foregoing indemnification obligations will not extend to any claim arising out of: (x) use of other than the then current, unaltered release of the Modified Standard Product or Custom Product or any Update, unless the infringing portion is also in the then current, unaltered release, (y) use of any software on other than the specified platform, or in combination with any software which is not part of the Modified Standard Product or Custom Product, if the infringement was caused by such use or combination, or (z) any modification or marking of any software other than by WAIS. THE FOREGOING STATES THE ENTIRE LIABILITY OF WAIS AND THE EXCLUSIVE REMEDY OF AOL RELATING TO INFRINGEMENT OR CLAIMS OF INFRINGEMENT OF ANY PATENT, TRADEMARK, COPYRIGHT, MASK WORK RIGHT, TRADE SECRET OR OTHER PROPRIETARY RIGHT BY THE MODIFIED STANDARD PRODUCT. LICENSOR WILL NOT PROVIDE ANY INDEMNITY WHATSOEVER FOR ANY ACTUAL OR ALLEGED INFRINGEMENT OF ANY FOREIGN PATENT, TRADEMARK, COPYRIGHT, TRADE SECRET OR OTHER PROPRIETARY RIGHTS BY THE MODIFIED STANDARD PRODUCT.

9.2 By AOL. Except as provided in Section 9.1, AOL will defend, indemnify, and hold harmless WAIS against all expenses and damages arising out of any claims against WAIS as a result of any use by AOL of the Modified Standard Product or Custom Product.

10. NONDISCLOSURE OF PROPRIETARY INFORMATION.

10.1 Title in WAIS. AOL acknowledges and agrees that the Modified Standard Product constitutes valuable property of WAIS, that all title and ownership rights to the Modified Standard Product shall remain exclusively with WAIS, and that AOL's rights to the Modified Standard Product are limited to those specifically granted in this Agreement. WAIS reserves all rights with respect to the Modified Standard Product under all laws for the protection of proprietary information, including trade secrets, copyrights and patents.

10.2 Nondisclosure by AOL. It may be necessary and desirable for WAIS to disclose to AOL proprietary information relating to WAIS' business activities, the Modified Standard Product, the Standard Product and other of its technical and proprietary information. AOL shall hold all proprietary information in confidence and avoid any use or disclosure other than as permitted by this Agreement or as otherwise authorized by WAIS. WAIS proprietary information shall be safeguarded by AOL in the same manner it safeguards confidential materials or data relating to its own business, but in no event less than reasonable care and which shall include requiring its employees to sign an agreement prohibiting the unauthorized use or disclosure of AOL and certain third party proprietary information.

10.3 Nondisclosure by WAIS. It may be necessary and desirable for AOL to disclose to WAIS confidential and proprietary information relating to AOL's business activities, its Rainman Plus, and other of its technical and proprietary information. WAIS shall hold all AOL proprietary information in confidence and to avoid any use or disclosure thereof other than as permitted by this Agreement or as otherwise authorized by AOL. AOL's proprietary information shall be safeguarded by WAIS in the same manner it safeguards confidential materials or data relating to its own business, but in no event less than reasonable care, and which shall include requiring its employees to sign an agreement prohibiting the unauthorized use or disclosure of WAIS and certain third party proprietary information.

10.4 Exclusions. For purposes of this Agreement, proprietary information shall not include:

- (a) Information generally available to or known to the public without the fault of the recipient;
- (b) Information known to recipient or in recipient's possession at the time of disclosure;
- (c) Information independently developed for the recipient outside the scope of this Agreement;
- (d) Information approved for release by the discloser;
- (e) Information rightfully received from a third party without a restriction on disclosure; and
- (f) Information disclosed by recipient under obligation created by law, regulation or court order.

11. MISCELLANEOUS.

11.1 No Agency. Neither party to this Agreement is an agent, partner, joint venturer or employee of the other, each party being an independent contractor of the other. Neither party has the right to bind the other to any agreement with a third party or to incur any obligation or liability on behalf of the other party or to make any warranty on behalf of the other party, except as specifically provided herein. AOL shall be authorized to withhold any taxes on amounts payable to WAIS in accordance with applicable law.

11.2 Assignability. Neither party shall sell, assign, transfer, convey, delegate or encumber any or all of its duties, obligations, rights or interest hereunder, whether voluntarily, involuntarily, by operation of law or otherwise, without the prior written consent of the nonassigning party, which consent shall not be unreasonably withheld or delayed.

11.3 Notices. All notices permitted or required to be given under this Agreement shall be deemed to have been duly given if such notice or communication shall be in writing and sent by overnight delivery, airmail, cable, telegram, telex, facsimile transmission or other means of prepaid delivery, postage or costs of transmission and delivery prepaid, to the party for whom it is intended at the address set forth below, until such time as either party hereto shall give the other party hereto notice of a change of address and/or fax number in accordance with the provisions of this Section 11.3.

If to AOL:

American Online, Inc.
8619 Westwood Center Drive
Vienna, VA 22182
Attention: General Counsel
Fax: (703) 448-9164

If to WAIS:

WAIS, Inc.
1040 Noel Drive
Menlo Park, CA
Attention: President
Fax: (415) 327-6513

11.4 Waiver. The failure by either party to exercise any right or option it is granted herein, or to require the performance of any term of this Agreement, or the waiver by either party of any breach of this Agreement, shall not prevent a subsequent exercise or enforcement of such terms or be deemed a waiver of any subsequent exercise or enforcement of such terms or be deemed a waiver of any subsequent breach of the same or any other term of this Agreement.

11.5 Modification or Amendment. Any modification or amendment of any provision of this Agreement must be in writing and bear the signature of the authorized representative of both parties.

11.6 Governing Law; Severability. The validity of this Agreement and the rights, obligations and relations of the parties hereunder shall be construed and determined under and in accordance with the substantive laws of the State of California and without regard to the rules governing conflicts of law; provided, however, that if any provision of this Agreement is adjudged by a court of competent jurisdiction to be in direct violation of any applicable law, such provisions shall to such extent as it shall be determined to be illegal or unenforceable under such law be deemed null and void, but this Agreement shall otherwise remain in full force and effect.

11.7 Complete Agreement. This Agreement sets forth the entire agreement between the parties hereto with regard to the subject matter hereof and merges all discussions between them and annuls and replaces any and every other agreement which may have existed between AOL and WAIS with respect to the subject matter hereof.

11.8 Publicity. Neither party shall publicize or disclose to any third party by any means any of the financial or business terms or provisions of this Agreement, or the discussions relating thereto, without the prior written consent of the nondisclosing party, except as required by law, regulation or court order, and except as AOL is required to disclose pursuant to the U.S. securities laws and regulations. Consent shall not be unreasonably withheld or delayed.

11.9 Costs. Each party shall bear its own costs and expenses in connection with this Agreement.

11.10 Headings. The headings contained herein are for convenience of interpreting any of the provisions hereof.

11.11 Taxes and Expenses. Each party hereby covenants and agrees to assume and pay all U.S. and foreign taxes imposed upon it as a result of this Agreement and its performance hereunder.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives.

AMERICA ONLINE, INC.
8619 Westwood Center Drive
Vienna, VA 22812

WAIS, INC.
1040 Noel Drive
Menlo Park, CA

By: Surell Pace

By: _____

Print Name: Surell Pace

Print Name: _____

Title: INTERNET PRODUCT MANAGER Title: _____

DSP 12/12/94

EXHIBIT A

SPECIFICATIONS

[see attached]

EXHIBIT B**SCHEDULE**

<u>Deliverable</u>	<u>Date</u>
Initial version of Custom Product, Modified Standard Product and Documentation	27 working days after Effective Date*
Final version of Custom Product, Modified Standard Product and Documentation	29 working days after delivery of initial version

*As used above, "working days" shall mean regularly scheduled working days of WAIS, and excludes weekends, holidays, and vacation and sick days taken by WAIS personnel working on the project.

Lightning Functional Specification

Will Tuthill
Dan Aronson
Brewster Kahle
WAIS Inc
DRAFT 1.0
11/20/94

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This specification is in response to: Thunder and Lightning Taking the Internet by Storm with AOL Publishing Tools by Sunil Paul and William Marriott, May 25, 1994, where the initial project was defined as:

Lightning -- A fast-track technology that lets any AOL IP publish to the Internet with little effort. The Lightning strategy is to position AOL's Rainman Plus as a platform from which to publish to Internet formats. Just as word processing applications gain market share by complying with their competitor's formats, Lightning will make Rainman Plus a more attractive interactive publishing platform. The target delivery of the product is September/October 1994. (See the attached screen shots of Mosaic and Rainman Plus for Time, Inc.)

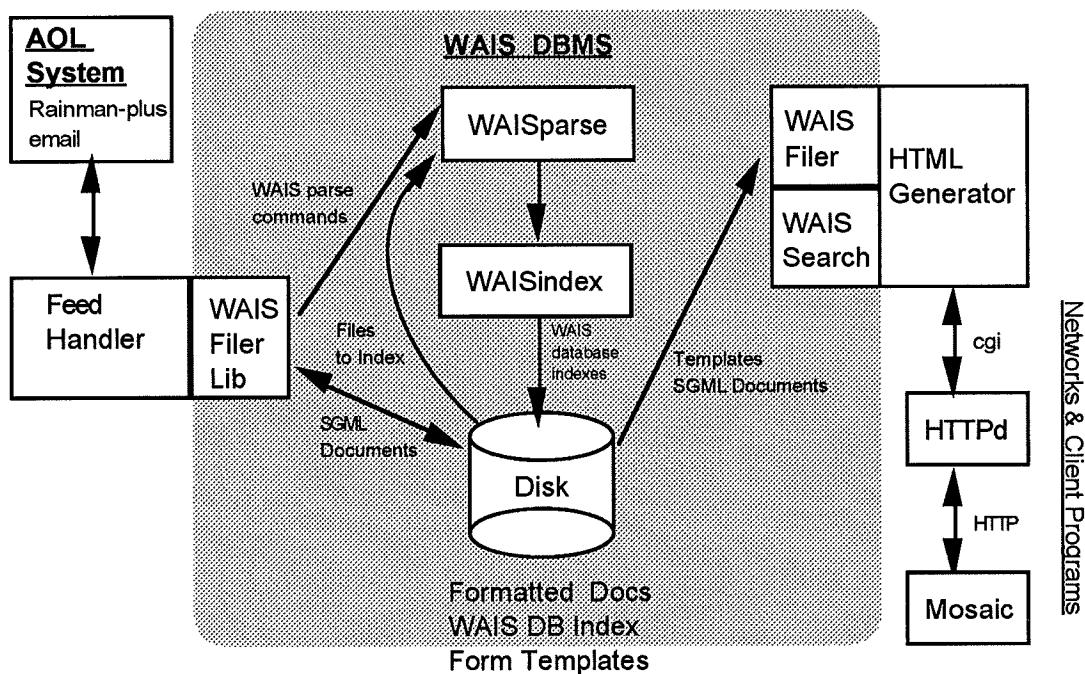
Features of the System:

- Integrated system for IP's to publish on Internet using Rainman system.
- Graphics and text integrated into a form will be displayed in a similar format HTML
- List boxes will be translated to a list of actionable hypertext buttons in HTML.
- Database searches will translated to form-based HTML entry boxes that can then be tied to WAIS searches.
- Information Providers will have the ability to select on a form by form level the ability to translate to HTML for Internet publication.
- There will be no provision for sales and credit-card transactions over the Internet with this translation.
- Text in a scroll box will be presented as a separate HTML page with the first x characters visible as a clickable hypertext button.
- Chat, Newsgroup/MsgBrd, software libraries, non English documents, and Surveys will not be supported.

This functional specification outlines the components and operation of the Lightning system. This draft concentrates on the RAINMAN input and document filing. It is not a full specification of the system.

This system duplicates the AOL Information Provider services in an Internet service using HTTP and HTML (World Wide Web). This system does not handle discussion boards, message boards, conferencing or ties to other AOL services. In other words, this will build a similar service to the broadcast-oriented publishing services of AOL.

Since America Online personnel understand many of the implications of implementing Rainman-plus, we suggest these are our capabilities, but would need further work with the experts to find difficult areas.



Lightning Block Diagram

Component Overview

This section provides an overview of the technical components of the Lightning system. A synopsis of each component is expressed in the following form:

- Functions: Summarizes the tasks handled by the component.
- Inputs: Describes the data entering the component and where it originates.
- Outputs: Describes the data produced by the component and where it goes.
- State: Specifies any internal state for the component.

Rainman Feed Handler

Functions: Translate incoming Rainman email messages to WAIS Filer Library calls to create, modify, delete and retrieve documents.

Inputs: Rainman+ email messages from AOL.

Outputs: Function calls to WAISfiler library to create, delete, get and modify documents.

Reply email to sender of Rainman script.

Record of each transaction to a log file.

State: Internal parser state for processing Rainman blocks.

WAIS DBMS

Functions: Index documents for rapid search and retrieval.

Inputs: Documents to index for searching via waisparse and waisindex.

Outputs: WAIS index files on disk.

State: Stored document indexes.

WAIS Filer Library

Functions: Translate document specifications to SGML formatted files on disk.

Update SGML formatted files with document modifications.

Retrieve and delete SGML formatted documents.

Inputs: Function calls from the Feed Handler to create, delete, retrieve and modify documents.

Formatted files on disk for input to document retrieval and modification functions.

Outputs: Document ID requests to WAISserver.

Formatted SGML document files on disk.

State: None.

WAIS Search Library

Functions: Serve document references to HTML generator.

Inputs: Search requests from HTML generator.

Outputs: File IDs and headlines to satisfy search requests from the HTML generator.

State: None.

HTML Generator

Functions: Use form templates and SGML documents to create Mosaic-ready HTML documents.

Inputs: Document display request from HTTPd.

Documents from WAIS DBMS.

Templates from the form template database.

Outputs: HTML document to display via HTML viewer.

State: None.

Design Overviews

This section provides an overview of the design of each component of the Lightning system. It provides a more in-depth descriptions than the Component Overview including data structures and data transfer mechanisms used between components.

Rainman Feed Handler

All of the Rainman specific code will be in the feed handler. Therefore this module should be carefully designed and built with AOL involved.

Functionality

The Rainman Feed Handler translates incomming Rainman email messages into WAIS Filer Library calls which result in adding, removing, modifying and retrieving documents in the WAIS database. Email messages are assumed to be sent directly from AOL and are assumed to contain valid, error-free Rainman scripts. The email header information is removed by the feed handler and the Rainman script is parsed. The results of parsing a Rainman script is a series of library calls to the document filer library. There are 4 library calls which facilitate the addition, deletion, modification and retrieval of documents in the WAIS database. Each library call requires information about the document such as its Rainman ID, the current user and the data contained within the document. This data is accumulated in the appropriate data structures as the Rainman script is parsed. Each time a valid block of Rainman code is parsed, a library call to create, delete or modify a document is made to the WAIS Filer Library.

Following is a summary of which commands will be supported in version 1.0. Y means supported. N means not supported. P means partially supported.

Command	Supported
<hr/>	
ATTACHFILE	N
CLEARDATA	Y
COMMENT	Y
CONTEXT	Y
CREATE	Y
DATA	Y (only formats TEXT, GIF)

DATELINE	Y
DELIM	Y
ECHO	Y
END	Y
ENDTRY	N
ERRORS	P (not full error reporting)
FBLANGUAGE	N
FEEDBACK	N
FIELDTEXT	Y
FORM	Y
FORMAT	P
GROUP	Y
HEADLINE	Y
HTEXT	Y
ICON	Y
ID	Y
INSERT	Y
KILL	Y
LANGUAGE	P (only English)
MAP	N
MAPKEY	N
MAXSIZE	Y
MODIFY	Y
OPTIONS	Y
PASSWORD	N

The valid names for arguments are described below along with their meanings and the format of their values.

WfNtitleText	The document title string,
WfNtitleDateSpec	How to display document creation date in the title expressed as a bitfield. Values in the bitfield are set by ORing together any combination of the following:
ACTIVE	Set to show date and/or time in title. The default is to not show it.
SHOW_DATE	Show creation date.
SHOW_TIME	Show creation time.
SHOW_ZONE	Show time zone abbreviation
SHOW_BEFORE	Show date and/or time before title. The default is to show it after the title.
WfNlinkTo	Pointers to other documents expressed as a list of LinkSpecs where a LinkSpec is defined as a list of ArgSpecs with argument names as follows:
WfNtitleText	The link title string.
WfNtitleDateSpec	How to display the creation date.
WfNiconNumber	Number of icon for link.
WfNviewRuleNumber	Number of view rule for link.
WfNreleaseTime	When link is released to users.
WfNremovalTime	When link is revoked from users.
WfNlinkToID	
WfNlinkFrom	List of Rainman IDs of documents (Collections) which point to this document.
WfNlinkLimit	Maximum number of links expressed as an integer.
WfNlinkOrder	Ordering rule(s) for links. TBD.

WfNlinkScrolling	Whether links scroll out of a document expressed as a boolean.
WfNformNumber	Number of form to use in displaying the document expressed as an integer.
WfNiconNumber	Number of icon used to represent the document expressed as an integer.
WfNiconShowing	Whether or not to show icons expressed as a boolean.
WfNdatabase	Database in which document is stored expressed in a form which is TBD.
WfNdataSpecs	A list of document DataSpecs where a DataSpec is defined as a list of ArgSpecs with argument names as follows:
WfNfieldNumber	Field in which data appears.
WfNformat	Format of the data.
WfNbytes	Number of bytes of data.
WfNdata	Pointer to the data itself.
WfNplusGroup	Plus group id for usage tracking expressed in a form which is TBD.
WfNsearchWords	Additional words to attach to this document which are used in searching. These are expressed as a NULL separated list of strings terminated with a NULL.
WfNtime	Time at which to perform a KILL request expressed in a form TBD.

Inputs

After the email header is stripped off of the incoming Rainman script, the Rainman commands themselves are processed. As the parser processes Rainman commands, internal state variables are set and data describing the document being created or modified is accumulated in ArgSpec structures. The actions taken for each Rainman command are detailed below.

ATTACHFILE

This command is ignored.

CLEARDATA**Internal state (modify block)**

Clears data from the specified field(s) of a given document.

Create and initialize DataSpec(s)

WfNfieldNumber = field number to delete

WfNformat = format of data (GIF, JPEG, ART)

WfNbytes = 0 to clear

WfNdata = NULL to clear

COMMENT

Lines beginning with the comment command are ignored.

CONTEXT**Internal state (modify block)**

Specify operation upon a given link.

Set docLinkNumber = specified link

CREATE**Internal state (create block)**

Start the beginning of a new create block by resetting document state variables.
Trigger the end of previous create or modify block if no END command did. (See
END for details.)

Only objects of type ARTICLE or COLLECTION are supported.

DATA

Internal state (create/modify block)

Specify data for a given field of the document.

Create and/or initialize a DataSpec:

WfNfieldNumber = field number for data

WfNformat = format of data (GIF, JPEG, ART)

WfNbytes = length of data in bytes

WfNdata = pointer to the data

DATABASE

Internal state (create/modify block)

Specify the database the document resides in.

Create and/or initialize an ArgSpec:

argSpec.name = DtNdatabase

argSpec.value = specified database (possibly NONE)

DATELINE

Internal state (context, create/modify, outside)

Specify if and how to display the document creation time in the document title.

Create and/or initialize a TitleDateSpec by using bitwise OR of any combination of the following:

ACTIVE

SHOW_DATE

SHOW_TIME

SHOW_ZONE

SHOW_BEFORE

DELIM

Interpreter only

Change the delimiter string used by the Feed Handler.

ECHO

Interpreter only

Write the specified string to the email buffer.

END

Internal state (create/modify block)

Signals the conclusion of a create or modify block. The information about the object collected in the data structures described in each command is processed at this point. Also processed at this point are requests to modify other documents to point to the currently specified document.

Make a function call to the document filer library to create or modify the document.

ENDTRY

Interpreter only

Terminate handling of try block and resume processing. (Not in prototype.)

ERRORS

Interpreter only

Sets error handling status to indicate if all errors are to be considered fatal. Since we're assuming the processing of RAINMAN scripts by AOL prior to interpreting them, we do not intend to implement sophisticated error handling. Rough feedback regarding errors will be provided to the user.

FEEDBACK

Interpreter only

Sets the feedback level to indicate which errors, warnings, etc. are provided to the user by adding them to the email buffer.

FIELDTEXT

Internal state (create / modify block)

Specify the text contained in a particular data field of the document.

Create and/or initialize a DataSpec

WfNfieldNumber = field number for data

WfNformat = text

WfNbytes = length of text in bytes

WfNdata = pointer to the text

FORM

Internal state (create / modify block)

Specify the form number to use when displaying the document.

Create and initialize an ArgSpec:

argSpec.name = WfNformNumber

argSpec.value = specified form number

FORMAT

Internal state (create/modify block)

Create and initialize a FormatSpec:

FormatSpec TBD

GROUP

Interpreter only (TBD)

Set the group id to indicate which group is being used.

HEADLINE

Internal state (create/modify block or link context)

Specify the headline for a document or link.

When referring to a DOCUMENT or ARTICLE

Create and initialize an ArgSpec:

argSpec.name = WfNtitleText

argSpec.value = text of headline

When referring to a link

WfNtitle = text of headline

HTEXT

Internal state (create/modify block)

Specify the text used in a particular field of the document and use the beginning of the same text for the headline.

Create and/or initialize ArgSpec & DataSpec:

argSpec.name = WfNtitleText

argSpec.value = first width - 3 characters of text

WfNfieldNumber = 0 TBD
WfNformat = text
WfNbytes = length of text in bytes
WfNdata = pointer to the text

ICON

Internal state (create/modify block or link context)

Specify the icon which represents the document or link.

When referring to a COLLECTION or ARTICLE

Create and initialize ArgSpec:

argSpec.name = WfNiconNumber

argSpec.value = number of icon

When referring to a link

WfNiconNumber = number of icon

ID

Interpreter only

Call CREATE handler for an ARTICLE since ID is just an abbreviated command to create an article.

INSERT

Internal state (create/modify block)

Add a link to the current document.

Create and initialize LinkSpec:

WfNnumber = specified number or getNextLinkNumber()

if docReleaseTime valid

 WfNreleaseTime = docReleaseTime

else

 WfNreleaseTime = defaultReleaseTime

if docRemovalTime valid

 WfNremovalTime = docRemovalTime

else

 WfNremovalTime = defaultRemovalTime

if docViewRule valid

 WfNviewRule = docViewRule

else

 WfNviewRule = None

KILL

Remove a document from the database.

Create and initialize ArgSpec

argSpec.name = WfNtime

argSpec.value = time specification (defaults to NOW)

Call the document delete function in the document filer library with the arg.

All links to the document are removed from the database at the specified time and the document itself is removed from the database one hour later.

LANGUAGE

Only English language documents are supported.

MAP

Not supported.

MAPKEY

Not supported.

MAXSIZE

Internal state (create/modify block or outside)

Specify the maximum number of links which can appear in a document.

When block is create or modify

Create and initialize ArgSpec:

`argSpec.name = WfNlinkLimit`

`argSpec.value = specified maximum number of links`

When outside a create or modify block

`set defaultLinkLimit = as specified`

MODIFY

Internal state (modify block)

Trigger end of previous create/modify block. (See END for details.) Start the beginning of a new modify block by resetting document state variables and retrieving the current state of the document from the WAIS database.

OPTIONS

Internal state (create/modify block)

Specify how links are inserted and displayed.

Create and initialize ArgSpec(s)

When SCROLL is specified

argSpec.name = WfNlinkScrolling

argSpec.value = true or false as specified

When MINI_ICONS is specified

argSpec.name = WfNshowIcons

argSpec.value = true or false as specified

When link order is specified

argSpec.name = WfNlinkOrder

argSpec.value = order type which may be one of the following:

NEW_TO_OLD

OLD_TO_NEW

ALPHABETIC

REVERSE_ALPHABETIC

ALPHANUMERIC

REVERSE_ALPHANUMERIC

PASSWORD

Not supported.

PLUSGROUP

Internal state (create/modify block, outside)

Create and/or initialize an ArgSpec:

argSpec.name = WfNplusGroup

argSpec.value = specified plus group

POSITION IN

Internal state (insert block in create/modify block)

Add a link to the specified document which points to the current document.

Create and/or add specified document ID in linkFrom list in current document

argSpec.name = WfNlinkFrom

argSpec.value = linkFrom

Modify document linked from - add link in linkTo list

create ArgSpecs for linkTo, linkLimit, linkOrder, linkScrolling

docGet(user, ID, args);

For normal positioning

insert link as specified by linkOrder in linkTo list

For absolute positioning

insert link into specified position in linkTo list

For relative positioning

insert link in specified relative position in linkTo list

TBD: HEADER, BODY, FOOTER positioning

REFERENCE

Not supported.

RELEASE

Internal state (create/modify, insert/context, outside)

Specify when to make link appear to the users.

When in insert or context block

WfNreleaseTime = specified release time

When in create or modify block

set docReleaseTime = specified release time

When outside any of these blocks

set defaultReleaseTime = specified release time

REMOVE

Internal state (create / modify, insert / context, outside)

Specify when to remove a link from user view.

When in insert or context block

WfNremovalTime = specified removal time

When in create or modify block

set documentRemoveTime

When outside any of these blocks

set defaultRemoveTime

SEARCHWORDS

Internal state (create / modify block)

Specify additional words to attach to the document which are used in a database search.

Create and/or initialize ArgSpec:

argSpec.name = WfNsearchWords

argSpec.value = NULL separated list of search words to add

SLUG

TBD. (Not in prototype.)

STOP

Not supported.

TEXT

Internal state (create/modify block)

Specify text of a document.

Create and/or initialize DataSpec(s)

WfNfieldNumber = 1

WfNformat = text

WfNbytes = length of text in bytes

WfNdata = pointer to the text

TEXTKEY

Not supported.

TITLE

Same as HEADLINE but will support typed (non-ASCII) text at some point. Only TEXT (not TYPED TEXT) is supported for the first release.

TRY

Interpreter only

Put marker on stack to indicate where to roll back to upon fatal error.

USER**Internal state**

Set user = specified user

VERSION**Interpreter only**

Set version flag = specified version (supports only 2.0)

VIEWRULE**Internal state (create/modify, insert/context blocks)**

Specify a rule number which indicates who can see the given document or link.

When in create or modify block

set docViewRule = specified view rule

When in insert or context

WfNviewRule = specified view rule

WARNINGS**Interpreter only**

Set flag to indicate level of warnings.

Outputs

The results of parsing the Rainman input is a series of function calls to the WAIS Filer Library which create, modify, delete and retrieve documents from the WAIS database. The interface to the library is as follows:

status wfCreate(ID, args)

Adds the specified document to the WAIS database.

status	wfDelete(ID, args)
Removes the specified document and links to it from the WAIS database.	
status	wfModify(ID, args)
Set the specified characteristics of the specified document.	
status	wfRetrieve(ID, args)
Get the specified characteristics of the specified document.	

Email messages are returned to the originator with status, warnings, errors etc. Since this whole system is mirroring the AOL site, we will not be implementing all of the elaborate reporting mechanisms in AOL. On the other hand, it will be careful to not "crash and burn" on errors.

Each document creation, deletion and modification request is logged to a file.

State Variables

There are 2 sets of state variables, one which is reset upon the start of parsing a new Rainman script and one which is reset upon the start of parsing a new document. These state variables are described below.

These session-specific state variables are reset upon reading a new Rainman script.

Delimiter	String used to delimit rainman commands.
EmailBuffer	File used to store email reply to sender of script.
ErrorProcessing	Error processing state.
FeedbackLevel	Feedback level.
Plusgroup	Plusgroup for document.
Group	Group for document.
IpId	ID for information provider.
ReleaseTime	When to release link. Defaults to NOW.
RemovalTime	When to remove link. Defaults to NEVER.
Database	Database into which documents are to be stored.

LinkLimit Maximum number of links a document may have.

These document-specific state variables are reset upon the start of processing a new Rainman document.

ReleaseTime When to release link. Defaults to NOW.

RemovalTime When to remove link. Defaults to NEVER.

LinkNumber Next link number to use.

LinkViewRule View rule number to use.

TitleDateSpec If and how to display the creation date in the title.

LinkFromDocs Pairs of IDs & modified linkTo lists.

Installation & Initialization

This module is put as a command in the aliases file of a unix machine. Therefore a separate process gets created for each message that comes in. This has the benefit of being able to handle a large number of messages simultaneously. It has the disadvantage that commands to the WAIS DBMS must be serialized.

Upon startup, the session-specific and document-specific state variables are initialized to their default values.

WAIS DBMS

Functionality

The WAIS DBMS holds the documents specified by Rainman commands and serves these documents to users via the HTML Generator.

Data Structures

There are no data structures used to interface with the WAIS DBMS.

Inputs

Document indexing commands in the form of WAISparse and WAISindex invocations.

Document requests from HTML Generator.

Outputs

WAIS indexes are created on the disk as a result of indexing requests on new or modified documents.

Documents are returned to HTML Generator.

State Variables

Documents are stored in the database. Information about existing documents is stored in the indexes.

Installation & Initialization

The WAIS DBMS is installed and initialized in the standard way as described in documentation available with the system.

WAIS Filer Library

Functionality

The role of the WAIS Filer Library is to provide a simple interface by which the Feed Handler can store and access documents. The library provides 4 function calls to create, delete, retrieve and modify documents in the WAIS database.

Data Structures

The data structures for this component are described in the outputs section for the Feed Handler.

Inputs

The function calls described in the outputs section of the Feed Handler are the inputs to the Document Filer Library. These commands enable the creation, deletion, modification and retrieval of documents from the WAIS DBMS.

In the case of a document retrieval request, documents in SGML format are read from the disk.

Outputs

Commands are created for indexing files in the WAIS DBMS using the WAISparse and WAISindex interface.

In the case of a call to the document creation or modification function, the new or modified document is stored on disk by the WAIS Filer Library. Documents are stored in SGML format.

State Variables

None.

Installation & Initialization

The WAIS Filer Library is linked with the Feed Handler and HTML Generator at compile time. The library may be linked statically or dynamically.

WAIS Search Library

Functionality

The role of the WAIS Search Library is to provide an interface through which the HTML Generator can make search and retrieval requests.

Data Structures

The data structures for this component are URL specifications for HTML.

Inputs

Search requests from the HTML generator in the form of queries using the HTML forms and cgi-bin facilities.

WAIS indexed documents on disk.

Outputs

Document IDs and headlines to satisfy search requests.

Document IDs to satisfy retrieval requests.

State Variables

None.

Installation & Initialization

The WAIS Search Library is linked with the HTML Generator at compile time. The library may be linked statically or dynamically.

HTML Generator

Functionality

Use form templates and SGML documents to create Mosaic-ready HTML documents. This includes providing a user interface to document search and retrieval.

Data Structures

There are no data structures used in the interface with the HTML Generator.

Inputs

Document display request from HTTPd through CGI (Common Gateway Interface.)

Indexed documents stored in WAIS DBMS.

HTML templates from the form template database.

Outputs

HTML documents which are displayed via an HTML viewer such as Mosaic when the HTML Generator is invoked through the CGI.

State Variables

Document IDs are stored in the clickable URLs in the HTML between search and retrieval requests.

Installation & Initialization

The HTML Generator is installed in the cgi-bin directory in a directory called Lightning.